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U. S. DEPARTMENT OF AGRICULTURE.

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REPORT

OF

THE ASSISTANT POMOLOGIST

FOR

1893.

BY

WM. A. TAYLOR.

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FROM THE REPORT OF THE SECRETARY OF AGRICULTURE FOR 1893.

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## REPORT OF THE ASSISTANT POMOLOGIST.

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SIR: The position of Pomologist having been vacant during the greater part of the year, it devolves upon me to transmit herewith a condensed report of the work of the Division of Pomology during 1893.

Very respectfully,

WM. A. TAYLOR,  
*Assistant Pomologist.*

HON. J. STERLING MORTON,  
*Secretary.*

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### OFFICE WORK.

Since June 15 the position of Pomologist has been vacant. Of the special agents, one was dispensed with early in the year, but the other, Mr. T. T. Lyon, of Michigan, has been retained. A fruit modeler has been employed, so that additions to the collection of models exhibited at the World's Fair may be made as suitable specimen fruits are received.

The extra work required by the completion of exhibits for the World's Fair and the subsequent decrease in the working force of the division have necessarily limited field work and delayed the preparation of matter for publication. The manuscript for the bulletin on nut culture, however, has been revised and the original illustrations for it have been completed, so that it is now nearly ready for transmittal.

The correspondence of the division is extensive, covering a wide range of subjects, and its disposition requires much time. The preparation of conscientious and careful replies to all letters received often involves interruption in the constructive work of the division, yet the beneficial influences of such correspondence seem to be of sufficient importance to the fruit-growing public to justify the time devoted to it.

During the year papers or addresses have been presented by representatives of the division before horticultural societies in Maine, Connecticut, Delaware, and North Carolina, and before the American Association of Nurserymen, the American Pomological Society, and the Horticultural Congress held in Chicago. Numerous other requests for such services have been refused, to prevent undue encroachment upon the other work of the division, but the results of frequent intercourse between the officers of the division and those in whose interests it was established are such as to make it a matter of regret that more such meetings could not have been attended.



### THE FRUIT CROP OF THE YEAR.

The season was marked by two striking features—the almost universal failure of the winter apple crop in sections which ordinarily furnish an abundant supply of that fruit, and the large crops of peaches and grapes in the regions where those fruits are chiefly grown.

#### CLIMATIC CONDITIONS.

The winter of 1892-'93 was noticeable for its long continued, severe, and steady cold, the temperature during the period from October to March, inclusive, being below normal over most of the region east of the Rocky Mountains. The precipitation during this period was also less than usual over most of the country. On the Pacific slope these conditions were partially reversed, the temperature being more nearly normal and the precipitation considerably above the average.

In most sections less damage was done to tender fruit trees and the grape than was at one time anticipated. Some injury to small fruits was experienced, particularly in the middle and upper Mississippi Valley regions, owing to the fact that during the unusually cold weather of January and February the plants and bushes were but slightly protected by snow.

Taken as a whole, the winter was a favorable one for the fruit-growing industry, and the promising condition of orchards in early spring afforded additional proof that a winter of steady cold weather, even though severe, is less injurious to the trees and plants of temperate climates than a season of higher mean temperature, in which mild periods are followed by sudden and marked cold waves.

#### APPLES AND PEARS.

The failure of the apple crop was probably not chargeable to the severe winter, but in many sections to the damage to foliage and general vigor of the trees by leaf-blight and scab during the previous season. In other sections it was due to the fact that the trees had been allowed to exhaust themselves by overbearing in 1891 and 1892. These causes, together with unfavorable weather at blossoming time, conspired to prevent an average crop of this fruit in most parts of the country. The most notable exception was the region including the States of New Jersey, Delaware, Pennsylvania, Maryland, and Virginia, where a fair crop of apples was grown. In the first two States, however, the yield of marketable winter fruit was greatly lessened by severe wind and rain storms in August and October, which beat the fruit from the trees and greatly diminished its value. In consequence of the short crop in most sections, prices of good apples have been high. In many instances they have sold in the markets at higher prices than oranges, and for the first time in many years apple dealers of New York and Ohio have been compelled to look to Maryland and Virginia for their winter fruit.

Apple exports during the year have not exceeded 22 per cent of those during 1892, while the average value per barrel of exported fruit has been about 17 per cent higher than in 1892, the export valuation during the two years being reported by the Treasury Department at \$2.55 and \$2.99 per barrel, respectively. In California and Oregon the apple crop has been good, and numerous carload shipments to Eastern markets have been made. One carload of 1,000 forty-five pound boxes of



Bellflower from California is reported to have been sold in St. Louis in November for \$1,800, or at the rate of 4½ cents per pound. This price leaves a handsome profit to the grower after deducting shipping and other expenses.

The yield of pears has been below the average except in the South, where the Kieffer and Le Conte varieties bore full crops.

#### PEACHES, PLUMS, AND SMALL FRUITS.

The crop of peaches was large in the sections which produce this fruit in commercial quantity, notably in Texas, Mississippi, Michigan, Connecticut, and on the Chesapeake peninsula. The fruit of late varieties was much damaged, and in some cases totally destroyed, by the violent storm of August 28-29. Prices of this fruit ruled low during most of the season.

The plum crop was less than an average one in most sections, though in the prune districts of the Pacific slope the crop was large, some estimates placing the yield of prunes as high as 50,000,000 pounds.

Small fruits yielded a short crop; the later ones, such as raspberries and blackberries, which survived the winter, having been cut off by drought in many sections.

#### GRAPES.

Grapes were everywhere abundant, and in the principal grape-producing belts they were of excellent quality, being less affected by black rot than for several seasons past. The recent extension of the period during which fresh grapes are obtainable in our markets is one of the surprising developments in modern commercial pomology. Fresh grapes of American production can now be had from June to March at prices varying from 3 cents to 30 cents per pound at retail. They are all grown out of doors, the lengthening of the season being due to the increased planting of table grapes in the South, the improved transportation facilities, and cheap cold-storage.

In Florida the Niagara is now grown to a considerable extent for shipment. It ripens during June and July and is followed by the better dessert varieties, such as Delaware, Brighton, and Concord, from the Piedmont region of South Carolina. Then in succession the markets are supplied with Moore Early, Brighton, Delaware, Concord, etc., from North Carolina and Virginia during July and August. By September 1 the early varieties from the Ohio lake region and the great market vineyards of New York reach the market, and grapes are abundant and cheap until December. The later varieties, such as Catawba and Isabella, from the last-named region, are kept in good condition in cold-storage establishments until March, being withdrawn in small quantities to suit the needs of the market as the season wanes. In view of the marked success attained by New York exhibitors of this fruit at the World's Fair, where clusters of several varieties of the crop of 1892 were shown in good eating condition in July, 1893, it may reasonably be expected that in the near future the grape will compete in our markets with the apple, as an "all the year round" dessert fruit.

When it is noted that this wide extension of the market season has been accomplished within the limits of a single botanical species (our earliest and latest market varieties belonging to *Vitis labrusca*), and during a period of less than eighty years since the first named variety of that species was introduced to cultivation, the radical nature of recent progress becomes more apparent.



The large yield of grapes has resulted in an over-supply at certain times in most markets, and as a rule prices have been low. Improved methods of distribution and reduced expense in marketing have left a margin of profit for careful growers, however, while the opportunity of securing grapes of good quality at low prices has been a blessing to thousands of our working people.

The raisin-grape crop of California has been a large one and prices have been rather low.

#### ORANGES AND LEMONS.

The orange crop in Florida promises to be the largest ever grown in that State, and prices up to the end of the year have ruled low. Much the same condition exists in California. In both States large areas planted in former years with this fruit are now coming into bearing. A leading problem with the growers is to find a market for their product at profitable prices. An attempt at direct shipment from Florida to England, as noted in the report of the Pomologist last year, was not entirely successful, and the experiment has not been repeated on so large a scale. Shipments of choice fruit, carefully packed and handled, were made during October and November from Florida, via railroad to New York, thence by fast steamer to Liverpool, with good success. The quantity marketed abroad in this way has exceeded the single cargo of last year, and prices have been fairly remunerative.

An extension of the ripening season of this fruit by the origination or discovery of varieties ripening earlier or later than those now grown is desirable. Several such have recently come to notice, and further advances in this line are needed.

The lemon, from the fact that it is more easily injured by cold than the orange, has not until recently received the attention it deserves in this country. It must be said, too, that the measure of success thus far attained by planters of this fruit in Florida has not been encouraging. Comparatively few prime lemons have yet been marketed from that State. Transportation charges favor the European rather than the Florida grower, as the freight charge from the Mediterranean ports to New York is one-third less than that from Florida points to the same city. Importations of lemons for the year show a decrease of about 3 per cent, the total value of the imported fruit being \$4,680,353 in 1893, as compared with \$4,831,334 in 1892.

The fact that lemons of the finest quality can be produced in southern California renders this one of the most promising fruits for planting in that region at the present time, as the California product can probably compete successfully with Mediterranean fruit in the markets of the West.

#### FIGS.

The fig, though long grown in a small way in the Southern States, has hitherto been an unimportant commercial crop in the United States, outside of California, but is now attracting considerable attention in the Gulf States as a market fruit. The crop this year was a large one in that section. Though the climatic conditions there do not favor the production of dried figs, it has been discovered that the fruit can be easily canned, and when thus prepared it meets with a ready sale. In southern Mississippi considerable and annually increasing quantities have been put up by the canneries for several years. Most of the older



fruiting trees are found in gardens and dooryards. As some single trees yield from \$20 to \$30 per season from the sale of fresh fruit to the canners, many new plantings have been recently made.

Certain difficulties in bringing the trees up to a bearing age have been experienced, owing to the susceptibility of the young trees to damage by frost and the necessity for pursuing a method of culture different from that practiced with other deciduous fruits. The Mississippi Agricultural Experiment Station is paying some attention to this subject at its branch station at Ocean Springs. Judging from the results obtained there, it is thought probable that a method of treatment modeled after that which the tree receives in dooryards will be found best adapted to it, and that it will soon be added to the list of profitable fruit crops for the Gulf region.

#### EXHIBIT OF THE DIVISION AT THE WORLD'S FAIR.

For the Department exhibit in the Government Building a collection of wax models of fruit, numbering nearly 1,000 specimens, was prepared. It included about 625 varieties, representing 40 native and introduced species and numerous hybrids. Special care was observed to make the models exact duplicates in size, form, and color of the originals they represented.

The exhibit was intended to afford a means for studying and comparing the outside characteristics of the varieties of our cultivated fruits, regardless of time or season. To cover the wide range of variation due to soil and climate which is found in almost every well-known variety, it was found necessary to prepare models illustrating as far as possible the changes that result from growing the leading varieties in regions that differ widely in soil and climatic conditions. Thus, in the case of one leading variety of the apple, twenty models were shown, each a duplicate of a specimen regarded as typical of the variety as it appears when grown in a particular locality.

As this collection is to be preserved for the use of the division, it is important that it be enlarged by the addition of other varieties and of other specimens illustrating further variations found in varieties already modeled. Such work has been continued in a small way during the year, and a number of additions have already been made to it.

Nut culture in this country has but recently attained commercial importance. It is, however, attracting much attention in some sections, and its judicious extension is worthy of encouragement. The exhibit at Chicago was specially designed to aid the intending nut-grower to select varieties for planting, by affording him an opportunity to compare their merits and defects by personal observation.

Other features of the division exhibit were a cultural exhibit of strawberries, a collection of colored illustrations of fruits, and an illustration of the methods followed in this office in recording and describing fruits received for examination.

The larger part of the exhibit is to be returned and displayed in the museum of the Department. An exchange has been arranged by which a set of models of Japanese fruits, exhibited at Chicago by the Japanese Commission, is to be added to it. Prof. T. V. Munson, of Denison, Tex., has donated to the division his entire exhibit, comprising herbarium specimens, sections of wood, photographs of fresh fruit and leaves, and specimen clusters of fruit, of all American species of the grape and numerous hybrids. This collection has been made with great care, and illustrates the conclusions in regard to the classification of American



grapes which Prof. Munson reached when investigating that subject recently as a special agent of this division. The collection will be accessible to all persons who wish to study and examine it.

#### UNCERTAINTY OF VARIETAL NAMES OF FRUITS.

The comparison of specimens of leading varieties of fruits received for modeling has yielded some results that seem to warrant a thorough investigation of the varieties of tree fruits that are of commercial importance.

In addition to the wide variations found in well-established varieties, which are evidently the effect of soil and climate upon the tree and fruit, a number of cases have been found in which there are in our nurseries and orchards clearly defined different strains of the leading grafted or budded varieties. Most of the cases thus far noticed have been found in the apple and peach. These differences extend through almost the entire range of varietal characters, including size, form, color, season of ripening, color and texture of flesh, flavor, and keeping quality. Though perhaps not sufficiently marked to warrant the division of existing sorts into two or more varieties each, with the multiplication of names that would result, they are certainly of enough economic importance to engage the attention of propagators of these fruits.

As examples of such variations a few specific cases may be noted. A Maine apple-grower sends specimens of a strain of Tompkins King, which, though grown in the same orchard, is much more oblong and conical than the typical form of that variety. The new type is also a better keeper. Both forms are known as Tompkins King, but as they are evidently different and one probably superior to the other an investigation should be made and a comparative test instituted that the better one may be selected for propagation. Another Maine grower furnished specimens of an apple upon which he has taken prizes at fruit shows, where he exhibited it as Baldwin. Though bearing a close general outside resemblance to that variety, it differs so widely in texture of flesh and flavor and is so inferior in quality that, when cut, it is readily distinguished from Baldwin. From California two distinct types of Rome Beauty have been received, which show constant variations in size, form, and color, though grown in adjoining orchards. In this case, each strain can be found to the extent of several thousand trees in a single locality, and in all the cases cited the different strains are found to have been quite largely propagated, so that the possibility that the variation may be due to a direct effect of stock upon scion is eliminated.

In the peach, the variation within varieties is even more apparent. Such old and widely recommended sorts as Crawford Early, Foster, Oldmixon, and Stump are each found to contain two or more strains differing in size, form, color, season of ripening, quality, and productiveness. From the desultory investigation which it has been possible to make thus far, it is evident that our leading fruit varieties are much less distinctly and accurately designated by their names than is generally supposed.

As intending planters depend largely upon the advice of those who have had experience, in making selections of varieties for planting, it is important that the same varietal names should stand for the same sorts in all parts of the country. Very few fruit-growers now propagate their own trees for orchard planting; most of them are conse-



quently dependent upon the honesty, carefulness, and competence of the nurserymen who supply them with young trees. A careful and thorough field investigation and comparison of types, with a view to selecting the best one of each of the leading varieties for propagation, would meet the hearty approval of all honest nurserymen and result in great future benefit to the fruit-growing public. Such a work would properly come within the province of this division. It should include a close investigation and comparison of trees in regard to vigor and habit of growth, hardiness, and productiveness, and of the fruit in regard to size, form, color, flavor, season of ripening, and keeping quality. After definite conclusions are reached, nurserymen and fruit-growers could be notified and arrangements easily made by which they could secure at their own expense scions of approved strains for propagation.

The question of how this divergence within varieties has come about is an interesting one. Its answer in many cases can be only a matter of conjecture. In the stone fruits, particularly the peach and the plum, it has probably often resulted from the selection of buds for propagation from seedling trees, which, while bearing a general resemblance to the parent varieties, were different in some one or more particulars, often undesirable ones. In other cases it may have come from bud variation, a phenomenon to which are probably due most of the existing differences found within the varieties of the apple, though in some classes of this fruit, notably the Russian importations, there are numerous reputed seedling varieties that so closely resemble one another that they can be distinguished with difficulty even by experts.

#### SEEDS, PLANTS, AND SCIONS RECEIVED AND DISTRIBUTED.

Few importations of foreign varieties for introduction have been made; some exchanges with foreign nurserymen and fruit-growers have been arranged which it is hoped will prove mutually profitable. In this way varieties of several fruits have been secured and distributed. Seeds or scions of others have been furnished to the division by originators, for distribution, so that in all about 70 fruit-producing varieties have been received. They have been placed with 128 experiment stations and private growers for testing.

For the information of the general public it is perhaps well to state that no general distribution of such varieties is made. In most cases but few plants or scions of a variety are received and these are placed where they can be carefully and fairly tested in a climate likely to be suitable for their growth. They are usually placed with the State experiment stations, if such exist in the region in question, or if not, then with private growers there who are known to have special facilities for testing them.

When originators desire to reserve the right to disseminate the varieties furnished, they are sent to the experiment stations under restrictions, so that the property right in the variety is retained by the originator. In this way a general and fair test of the variety is made possible previous to its introduction and sale, a plan which can hardly fail to protect fruit planters against many of the evils resulting from the indiscriminate introduction of untried sorts.

#### APPLE.

Through the kindness of Mr. Sigmund Katona, of Kecskemet, Hungary, scions of 24 varieties of the apple were received. These varieties



Mr. Katona regards as some of the most valuable Hungarian sorts, and they have not previously been introduced to this country. They were distributed to 8 experiment stations and 7 individuals in 13 States and Territories for propagating and testing. Though many of the scions were quite dry when received, it is gratifying to note that but one variety failed to grow. Several others made but little growth, but it is hoped that in a year or two it will be possible by exchanges of scions to establish the full set of varieties with each experimenter, and thus to come promptly to correct conclusions regarding their value for different regions. Besides these Hungarian apples, scions of 18 American varieties were sent out for testing.

#### PLUM.

Of the plum, scions of 8 varieties were received from Hungary and were sent to 3 experiment stations and 6 individuals in 7 States. All but one of these varieties were reported as alive at the close of the year by some of the experimenters.

#### CHERRY.

Five varieties of the cherry were received from Hungary and distributed to 6 experiment stations and 5 individuals in 8 different States. All of these varieties are reported as living at one or another of the testing places.

#### FIG.

Much confusion and uncertainty exists in the nomenclature of varieties of the fig grown in this country. Most importations hitherto made have been through commercial channels, and the accuracy of the nomenclature of varieties thus received can not be depended upon. To enable fig-growers to correct this unfortunate condition of affairs arrangements have been made with the Royal Horticultural Society of England to secure scions of the collection of figs in the gardens of the society at Chiswick for grafting. This collection, which comprises about 65 varieties of the fig, has been made with great care and is believed to be the most accurately named collection in existence. It is hoped that by grafting these scions on bearing fig trees in California, they can be brought into full fruiting the second year after insertion, and that prompt and accurate determinations of the identity of varieties already grown in this country can thus be made and the relative values of new ones approximately determined.

#### AVOCADO.

Seeds of *Persea gratissima* were received from Mexico through the courtesy of Mr. F. Foëx, of Eddy, N. Mex., and distributed for testing in the Gulf States and California. They were selected from two types of this fruit, both of which are reported to have borne fair crops this year, though subjected to a temperature of about 22° F. during a severe storm at blooming time. They are believed to be superior in point of hardiness to the types of this interesting and useful species previously grown in the Southern States.

#### AUSTRALIAN FRUIT AND NUT TREES.

Through the kindness of Messrs. Pink & Cowan, of Brisbane, Australia, a few trees of a new variety of mandarin, "Beauty of Glen Retreat," were received. This is of Australian origin and, though



rather small, is claimed to be the finest variety of this fruit grown in that country.

Plants of several Australian economic and ornamental species were received and placed in the greenhouses in charge of the Superintendent of Gardens and Grounds. Among them were the following fruit and nut-producing species, mostly of a tropical or semi-tropical character:

**BURDEKIN PLUM** (*Spondias pleiogyna*).—A tree bearing a fruit described as a somewhat globular drupe, 1 to 1½ inches in diameter, of dark color and nice acid flavor. "Likely to prove useful under cultivation."

**HERBERT RIVER CHERRY** (*Antidesma Dallachyanum*).—A small tree, bearing fruit of the size of large cherries, having a sharp acid flavor resembling the red currant.

**QUEENSLAND TAMARIND** (*Diploglottis Cunninghamii*).—A tall tree with large pinnate leaves; fruit from half an inch to 1 inch in diameter, of delightful acid flavor.

**CANDLENUT** (*Aleurites Mollucana*).—A tree of considerable size, bearing nuts rich in a palatable oil, used for various purposes in many of the islands of the Pacific.

**QUEENSLAND NUT** (*Macadamia ternifolia*).—A tree sometimes 50 feet high, bearing a nut about 1 inch in diameter and of very delicate flavor and fine quality. This was introduced into California several years ago. It does not endure frost.

#### MISCELLANEOUS.

Plants of one variety each of strawberry, gooseberry, grape, hazel, and black walnut have been distributed; also scions of 5 varieties of the kaki and 4 varieties of the native persimmon. Seeds of 2 choice types of the papaw (*Asimina triloba*) and a few walnuts were also sent out. Among the latter were nuts of the California walnut which were sent to the Gulf States to test the availability of this species as a stock for *Juglans regia* in that region.

#### PROMISING NEW FRUITS.

The examination of new fruits sent by growers for opinions as to their relative merits and probable usefulness has disclosed some new varieties that are worthy of propagation. Descriptions of such as seem most promising are given below, some of them being illustrated. Many of the varieties described have not yet been introduced to the public nor offered for sale by the originators. It should be understood that the Department does not propagate these varieties nor distribute them, except in rare instances where the originators donate the plants or trees for that purpose.

This explanation seems necessary because of the numerous applications received for varieties described or illustrated in previous reports.

#### APPLE.

**Adirondack** (L. Delmar Hay, West Chazy, N. Y.).—Roundish, conical; regular, of medium size, with smooth surface, becoming glossy when rubbed; color rich yellow, washed and striped with red; dots small, straw color, slightly elevated; cavity large, round, deep, flaring; stem of medium length and thickness, slightly knobbed; basin small, nearly round, very shallow, with convex sides, slightly and regularly ribbed and downy; calyx segments rather small, meeting; eye small, closed. Skin thin, tough; core large, broad, heart-shaped, moderately open, clasping; seeds numerous, oval, plump, grayish brown; flesh yellowish white, granular, rather dry, tender; flavor mild subacid; quality good. Season, October to January in Clinton County, New York. Tree a good grower; resembles Baldwin in its bearing habit; hardy at its place of origin. This variety is said to have originated from seed of Westfield (Seek-No-Further) crossed with Hubbardston. It is a promising early winter apple for northern New York and New England.

**Aroostook**, synonym **Aroostook Sunset** (J. W. Dudley, Mapleton, Me.).—A sweet russet apple, originated at Castle Hill, Me., by S. S. Stiles. In appearance the fruit resembles Pomme Gris, but is a better keeper. Said to keep in fine condition, without special care, until July. Tree hardy and an annual bearer in Aroostook County.



*Babbitt*, synonym *Western Baldwin* (W. R. Laughlin, College Springs, Iowa).—Oblate conical, angular, large; surface smooth, greenish white, shaded, washed and striped with red; dots few, light; cavity large, regular, deep, with gradual slope and russet markings; stem short, slender at fruit, thick at base; basin of medium size, regular, abrupt, furrowed; calyx segments very short, converging, slightly reflexed; eye very small and closed. Skin thick, but tender; core large, wide, conical, open, clasping; seeds few, of medium size, plump and brown; flesh yellowish white, fine grained, juicy, brisk subacid; quality very good, particularly for cooking. Season, winter. Tree large, a strong grower with large leaves and tough wood. Originated from seed of Baldwin by C. W. Babbitt, of Woodford County, Ill., about 1845. Though not a new variety this has but recently come into prominence as a market fruit. The tree is hardy and productive in the Central States.

*Bryant* (Plate 1—G. W. Bryant, Vienna, Va.).—Roundish oblate, often oblique, large; surface moderately smooth, greenish yellow, shaded and splashed with dull red and striped with darker red, often covered with gray; dots numerous, large, russet, with protruding centers; cavity large, regular, deep, abrupt, russeted; stem short, rather stout; basin regular, very large, deep, with gradual slope, folded; calyx segments wide, short, reflexed; eye large, open. Skin thick; core conical, small, closed, clasping; seeds few, of medium size, plump, brown; flesh yellow, coarse grained, juicy, very mild subacid; quality very good. Season, late winter in Virginia. A very promising variety for market and dessert.

The original tree, now 75 years old, stands on Mr. Bryant's farm, near Vienna, Va., and is yet bearing. This variety was described in the report of the Pomologist last year but is repeated here to accompany the colored plate.

*Cunningham (Cheese)* (Thomas J. Garden, Gardenia, Va.).—Oblate, regular, of medium size; surface smooth, greenish yellow, almost covered with different shades of red, washed and striped; dots slightly russet, raised; cavity large, angular, deep, flaring, marked with yellowish brown russet; stem short, uniform, rather stout; basin large, nearly round, deep, broadly flaring, regular, nearly smooth; calyx segments converging; eye medium, closed. Skin thick, firm; core small, oblate, slightly open, meeting the eye; seeds numerous, rather large, broad; flesh yellowish, firm, juicy; flavor mild subacid, very pleasant; quality very good. Originated with Jacob Cunningham in Prince Edward County, Va., about 25 or 30 years ago.

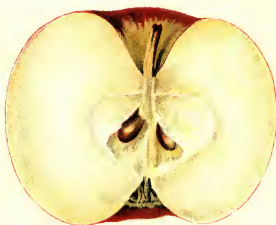
*Gardenia* (Spring Hill Nursery Company, Gardenia, Va.).—Roundish, above medium size; surface moderately smooth, yellow, covered with dull red and obscurely striped with darker red, finely russeted; dots small to large, yellow and russet, often star-shaped. Skin thin, core of medium size, wide, conical, open, clasping the eye; seeds few, of medium size, short, plump, brown; flesh yellowish, rather fine-grained and juicy; very mild subacid; quality very good. Tree a vigorous grower, inclined to head low. A seedling on the farm of C. A. Price, of Prince Edward County, Va.

*Hames* (J. W. Kerr, Denton, Md.).—Roundish oblate, regular, large; surface smooth, whitish, almost entirely covered with mottlings, splashes and stripes of light and dark red; dots yellowish and brown, areolar and indented; cavity small, regular, shallow, with gradual slope; stem of medium length, stout, fleshy at both ends; basin of medium size, regular form, medium depth and gradual slope, corrugated, leather-cracked; calyx segments short, wide, erect or slightly reflexed; eye small, closed. Skin thick, tough; core of medium size, conical, closed, meeting the eye; seeds few, medium, brown; flesh yellowish, moderately fine grained; brisk subacid; quality good. This apple, which originated at West Point, Ga., was described by Downing in the Third Appendix to the Second Revision of Fruits and Fruit Trees of America, but seems not to have received the attention it deserves from apple-growers in the southern central States. The tree is described as a vigorous grower, upright, making a round head with age, and an early and good bearer annually. Its season of ripening in Caroline County, Md., is about three weeks later than Red Astrachan, or about August 15.

*Kentucky Summer Queen* (J. W. Kerr, Denton, Md.).—Roundish, truncated, large; very smooth, greenish white, nearly covered with splashes and stripes of dark red mixed with gray; dots conspicuous, yellow or light gray; cavity of medium size, regular form, moderate depth and gradual slope; stem short, moderately stout, with bracts; basin smooth, regular, of medium depth and gradual slope, downy; calyx segments short, wide, meeting; eye small, closed. Skin thin, tender, readily parting from the flesh; core large, wide, nearly closed, clasping the eye; seeds few, large, plump, light brown; flesh whitish yellow, fine grained, juicy; flavor mild subacid, rich; quality very good to best. Season middle of August in Caroline County, Md. A very promising market and dessert apple for late summer and early fall. The name is objectionable and needs revision.

*Knight* (David Johnson, Union, S. C.).—Oval, truncated, size below medium; surface smooth, glossy, greenish yellow, washed, striped, and almost entirely covered with two shades of red; dots numerous, large, conspicuous, slightly raised; cavity medium, round, quite deep, abrupt; stem of medium length and thickness, slightly







swollen towards the base; basin quite large, nearly round, rather deep, abrupt, slightly ribbed and with slight bloom; calyx segments tightly closed over the small eye; core small, roundish, closed; seeds few, quite large, pointed, dark brown. Skin thick, tough; flesh white, tinged with red; flavor very mild subacid, almost sweet; quality good. Tree of vigorous growth. Originated in Union County, S. C., and keeps through the winter in that section.

*Marsh* (G. W. Walker, Friendsville, Tenn.).—Nearly round, of medium size; surface smooth, a little angular, dull green, modified by dull red striping and clouding; dots gray, numerous near apex; cavity medium, somewhat irregular, of medium depth, rather abrupt slope, marked with slight knob on one side; stem  $\frac{3}{8}$  inch long, uniform, rather stout; basin quite large, round, shallow, with a broad, saucer-like slope. Skin of medium thickness, firm; core small, round, slightly open at the center, clasping; seeds numerous, broad, shaded brown and black; flesh greenish white, moderately tender, very juicy, mild subacid; quality good; season winter. Tree healthy, prolific; leaf large, leathery, light green above, gray beneath; broad obovate, with deep serrations. A seedling of North Carolina Buff planted 16 years ago by Mr. Marsh, of Blount County, Tenn. It fruited at five years from planting and has borne every year since.

*Morven* (Dr. J. J. Black, New Castle, Del.).—Oblate, pentangular, small; surface smooth, glossy, pale yellow, washed, splashed and striped with crimson; dots large, gray; cavity large, regular, deep; stem short, moderately thick, with bracts; basin medium in size and depth, regular; calyx segments wide, very short, converging; eye small, partially closed. Skin thin; core small, oblate, conical, closed, clasping the eye; calyx tube long; seeds short, large, dark brown; flesh white, fine grained, very juicy; flavor subacid, sprightly, pleasant; quality very good to best. A choice dessert winter fruit supposed to be a seedling of Lady.

*Ross* (William Stammer, South Osborn, Wis.).—Oblate conical, of medium size; surface smooth, yellow, with bright blush on sunny side; dots small; cavity regular, of medium size, deep, with regular slope and russet markings; stem very short, angular; basin regular, of medium size and depth, with gradual slope, folded; eye small, closed. Skin thin; core large, wide, conical, closed, meeting the eye; seeds large, plump, brown; flesh yellowish, fine-grained; brisk subacid; quality good. Tree a slow grower, forming a thick, compact head; young wood slender and willowy. A productive variety and a long keeper. Originated in Outagamie County, Wis., 25 years ago.

*Scotch Red* (J. Van Lindley, Pomona, N. C.).—Roundish oblong, of medium size; surface smooth, glossy; color nearly a solid red with a few russet patches; dots russet; cavity medium, regular, deep, abrupt, marked with light russet; stem short, slender; basin medium in size and depth, regular with gradual slope, marked with deep furrows; calyx segments long, narrow, meeting and slightly reflexed; eye small, closed. Skin thick, tender; core of medium size, closed, conical, clasping the eye; seeds few, large, plump; flesh white, rather coarse grained and crisp; flavor sweet and rich; quality good. Season August, in western North Carolina. A choice red, sweet apple for late summer and fall.

*Strinestown*, synonym *Streintown Pippin* (H. S. Rupp & Sons, Shiremanstown, Pa.).—Roundish conical, medium to large; very smooth and glossy, greenish white, blushed with light red on the cheek; dots numerous, light; cavity medium, rather narrow, deep with a gradual slope and russet nettings; stem medium, slender, curved, brownish red; basin large, irregular, deep, abrupt, folded; calyx segments quite long, converging and reflexed; eye small, nearly closed. Skin thin, tough; core small, closed, conical, clasping; seeds numerous, of medium size, short, plump, brown; flesh whitish, rather coarse grained, firm, juicy; subacid; quality good. Season February and March. This variety originated near the town in Pennsylvania for which it was named, and is one of the most regular and prolific bearers of marketable fruit in that section.

*Tunnell* (S. Tunnell, Cincinnati, Ark.).—Roundish oblate, above medium in size; surface moderately smooth, greenish yellow, striped, shaded, and splashed with red and somewhat netted with russet; dots numerous, large, yellow, with brown centers; cavity large, regular, deep, with gradual slope and green markings; stem long, slender; basin large, regular, deep, abrupt, russeted; calyx segments wide, short, meeting over the eye, which is large and partially open. Skin thick, tough; core small, conical, closed, clasping the eye; seeds numerous, of medium size, plump, pointed, dark brown; flesh yellowish, fine grained, not very juicy; flavor sweet, aromatic, rich; quality very good. Season autumn in Arkansas. A seedling in Mr. Tunnell's orchard, 7 or 8 years old. Tree is thrifty and has been bearing for three years. A delicious sweet apple.

*Venus* (William Stammer, South Osborn, Wis.).—Oblong conical, large, somewhat angular; smooth, of a rich yellow color with a slight blush on the sunny side; dots numerous, brown; cavity regular, of medium size, deep, abrupt, slightly marked with russet; basin regular, of medium size and depth and gradual slope, folded;



calyx segments long, pointed, reflexed; eye large, nearly closed. Skin thin; core large, open, conical, clasping; seeds numerous, small, plump, dark brown; flesh yellowish white, fine grained; flavor subacid, pleasant; quality good. A winter apple claimed to have originated in Outagamie County, Wis., 20 or 25 years ago.

*Wallace Howard* (G. H. Miller & Son, Rome, Ga.).—Oblong, large; surface moderately smooth, greenish yellow striped with pale red; dots russet, some of them indented; cavity medium, regular, deep, with gradual slope and russet markings; stem three-fourths of an inch long, of medium thickness; basin small, regular, of medium depth and gradual slope, marked with very slight folds; calyx segments short, meeting over the eye, which is small and closed. Skin thick, tough; core large, conical, closed, clasping; seeds few, of medium size, plump, round, brown; flesh yellowish white, fine grained, breaking; mild subacid; quality good; season October. Grown from seed by Robert Boatman, near Dillon, Walker county, Ga., and named in honor of Rev. Wallace Howard by the Atlanta Pomological Society.

*Whitman* (George Ruedy, Colfax, Wash.).—Oblong, angular, irregular, large; surface uneven and ribbed, though with a smooth skin; color a dark greenish yellow, washed, splashed and striped with bright red; dots numerous, conspicuous, light colored, some with small russet centers; cavity medium, roundish, angular and slightly lipped, shallow, flaring; stem three-fourths of an inch long, rather stout, swollen at both ends; basin large, roundish, of medium depth and convex slope, ribbed and angular; calyx segments broad, short, reflexed above the large open eye. Skin thick, hard; core of medium size, conical, slightly open, meeting the eye; seeds numerous, small, plump, pointed, grayish brown; flesh yellowish, firm, granular, rather dry; flavor mild subacid; quality good. Season late winter and spring. Originated near Pine City, Wash., with a Mr. Ralls in 1875. Has borne regularly since 1880.

*Willamette* (J. N. Schram, Gresham, Oreg.).—Roundish oblate conical to oblong conical, irregular, ribbed; large, smooth, oily, resembling Lowell in this respect; color rich yellow, occasionally blushed; dots small, scattered, brown; cavity large, wide, deep, with gradual slope and green markings; stem short to medium, moderately stout, knobbed at base and very downy; basin irregular, of medium size and depth, abrupt and furrowed; segments wide, long, converging and reflexed; eye medium to large, nearly closed. Skin thin; core large, broad, slightly open, clasping; seeds few, of medium size, plump, brown; flesh yellowish white, fine grained, tender, juicy; flavor subacid; quality very good. Season early winter. A seedling from Multnomah County, Oreg. The original tree is 7 years old and has borne three crops.

*Unnamed seedling* (G. W. Walker, Friendsville, Tenn.).—Roundish oblate, of medium size; surface smooth, except fine leather-cracking; greenish white, washed and striped with two shades of red; dots yellow, some areolar; cavity medium in size, regular, of medium depth and abrupt slope, marked with slight russet; stem one-half inch long, of medium thickness; basin medium, regular, shallow, with gradual slope and slight russet nettings; calyx segments short, wide, reflexed; eye medium, open. Skin thick; core of medium size, wide, conical, slightly open, clasping the calyx tube; seeds few, plump, gray; flesh greenish yellow, fine grained, tender, juicy; spicy, rich, subacid; quality very good. Season winter. A seedling of Green Crank, probably crossed with Winesap.

#### PEARS.

*Crisco* (J. Van Lindley, Pomona, N. C.).—Roundish, below medium size; surface moderately smooth; greenish yellow, nearly covered with russet; dots numerous, light russet; basin medium, irregular, of medium depth and abrupt slope, marked with netted russet; calyx segments short, stout, straight; eye small, closed; cavity very small, irregular, very shallow, marked with heavy russet; stem medium, stout, fleshy at base. Skin thin, tough; core medium, oval, closed, meeting the eye; seeds few, of medium size, plump; flesh greenish white, fine grained, juicy; flavor mild subacid, almost sweet; quality good to very good. Season September 1, in Guilford County, N. C. Reported to be a seedling grown by Robert Crisco in Richmond County, N. C. It is supposed to be a seedling of Seckel; has not blighted thus far in North Carolina.

*Magnolia* (Plate II—Jennings Nursery Company, Thomasville, Ga.).—Broad to roundish pyriform; large to very large; surface smooth, yellowish russet, tinged with red and brown in the sun and greenish on the shady side; dots numerous, irregular, large, light russet; cavity small, nearly round, shallow; stem medium, rather stout; basin large, round, rather deep, regular, funnel-shaped; calyx nearly or wholly deciduous; eye small, open. Skin thick, quite stiff but brittle; core conical, quite large, closed, meeting the eye; seeds numerous, broad, pointed, large, nearly black; flesh white, crisp, tender, juicy; flavor mild subacid; quality good, particularly for canning and preserving. Season late fall and early winter in









JOHNSON QUINCE



southern Georgia. Tree said to be a healthy, thrifty, dwarfish grower. Original tree received in a lot of Japanese pear stocks from California in 1889. It is a promising variety for planting in the South where a later pear than Kieffer is desired.

*Summer Beauty* (Otto Locke, New Braunfels, Tex.).—Obscure, unequal pyriform, somewhat irregular, large; surface quite uneven, yellowish green with many russet spots and patches and a blushed cheek; dots numerous, russet; stem of medium length, rather stout, becoming fruity toward insertion; inserted with a lip, commonly without depression; basin roundish, irregular, medium to large, of medium depth and gradual slope, marked with slight angles; calyx segments thickened at base, the tips sometimes dropping off before the fruit is ripe; eye open or partially so. Skin rather thin, tough; core ovate, small, slightly open, meeting the eye; seeds imperfect; flesh greenish or yellowish white; sweet, rich, slightly astringent; quality good. Season August in Comal County, Tex. Succeeds as a dwarf. Original tree found in an old garden in New Braunfels in 1872. Trees grafted from it on quince stocks bore first in 1880, and have borne regularly since; heavy crops during past 5 years. Tree a late bloomer. Promising for western Texas where most varieties fail. Worth testing further north.

*Tiffin* (Philip H. Bork, Tiffin, Ohio).—Broad obovate, large; surface smooth, greenish yellow, with a few thin patches of russet, and a faint blush in the sun; dots numerous, brown; stem of medium length, slender, uniform, curved, inserted without depression; basin wide, of medium depth and gradual slope, russeted; calyx segments wide, reflexed, eye small, open. Skin thin; core large, oval, closed, meeting the eye; seeds large, plump, brown; flesh white, buttery; flavor mild, subacid; quality good. Season early October in Seneca County, Ohio, where it originated with Mr. Henry Loose, of Tiffin.

#### QUINCE.

*Johnson* (Plate III—W. B. K. Johnson, Allentown, Pa.).—Large, oblate conical, compressed at stem; surface moderately angular, glossy, somewhat downy in depressions; color greenish yellow; dots small, numerous, green; cavity slightly compressed, nearly level, broad; basin angular, large, abrupt, deep, with heavy angles; calyx segments leafy, becoming fruity at base; eye large; core oblate conical, large, open; seeds numerous; flesh yellowish, comparatively tender; juicy, mild, with a slight aroma; quality good; ripens ten days later than Orange. Has been grown by Mr. Johnson for about 15 years.

#### PEACH.

*Balsey* (John A. Young, Greensboro, N. C.).—Roundish oblong, with slightly uneven surface; creamy white, washed and striped with different shades of red; down short, persistent; cavity large, oval, deep, flaring; suture slightly depressed but distinctly marked, deeper towards the apex, which is minute and within the suture; skin moderately thick and strong; stone medium, semicling; flesh white to greenish white, melting, juicy; flavor mild, sweet; quality good. Season June 20 in Guilford County, N. C., ripening with the earliest varieties. Said to be a seedling of Connet, which it much resembles, but is twenty days earlier and of deeper color. Originated with W. G. Balsey, of Greensboro.

*Crothers* (T. T. Lyon, South Haven, Mich.).—Roundish, of medium size, smooth; greenish white, washed and shaded with crimson; down short, soft; cavity of medium size, regular, of medium depth, abrupt; suture very shallow except at apex, which is a minute dot. Skin thin, strong; flesh white, red at the stone, which is of medium size, oval, and free; texture melting, juicy; flavor sprightly, good. Season late; tree upright, spreading; flowers small; glands globose. T. V. Munson finds it to ripen with Ward Late in Texas and regards it as superior to that variety in that State.

*Dixie* (E. Balbach, Waldo, Fla.).—Roundish, above medium size; smooth, yellowish white, with a handsome blush; down short, persistent; cavity medium, regular, deep, abrupt; basal half of suture very deep; apex small, inclined. Skin thin, slightly bitter; flesh white, slightly tinged at stone, which is of medium size, oval, and a cling; texture firm but melting; flavor mild subacid, slightly bitter; quality good. Its good size and bright color may make it a good market variety in Florida.

*Garden Cling* (L. T. Sanders, Plain Dealing, La.).—Roundish compressed, of medium size; surface quite uneven; creamy white, with splashes of red on the shady, and dull red on the sunny sides; down harsh, persistent; cavity medium, oval, of medium depth, flaring; suture slightly sunken at base, even with the surface or slightly protruding toward the apex, which is very slightly sunken or protruding. Skin thick, tough; flesh yellowish white, firm, juicy, closely adhering to the medium-sized, smooth, plump, oval stone; flavor sweet, sprightly; quality good. Season July 25 in Bossier County, La.



*Hance (Golden)* (T. T. Lyon, South Haven, Mich.).—Roundish, of medium size; smooth, velvety, greenish yellow, shaded and washed with crimson and purple; cavity large, wide, deep, with gradual slope and pink markings; suture deep at base and apex and extending an inch beyond the latter, which is a minute dot. Skin thin, tenacious; flesh yellow, red at the stone, which is small, roundish oval, and free; texture melting, juicy; vinous, sprightly; good. Season with Crawford Early. Tree upright, spreading; flowers small.

*Hyatt* (T. T. Lyon, South Haven, Mich.).—Somewhat resembles Hale, but slightly earlier; more nearly a freestone and of better quality.

*Indian Chief* (L. T. Sanders, Plain Dealing, La.).—Roundish, pointed, large, with rather harsh surface; dark yellow, striped, splashed and shaded with purplish red; cavity large, oval, deep, abrupt; suture shallow; apex prominent. Skin thick tough; flesh yellow, streaked with red near skin and stone; stone large, oval, cling; texture firm; flavor very mild subacid, rich, good. Season in Bossier County, La., August 10. "A seedling of 'Hughes I. X. L.'" It is evidently of the Spanish type.

*Keith* (E. Balbach, Waldo, Fla.).—Roundish oval, of medium size; surface soft, velvety; greenish yellow, mottled and shaded with red; down short; cavity of medium size, regular, deep, abrupt; suture deep near base, shallow towards apex; apex slightly protruding. Skin thick, tender, slightly bitter; flesh white, slightly tinged with red at the stone, which is of medium size and a plump, oval cling; texture of flesh tender, melting; flavor mild, subacid, slightly bitter; quality good. Season early June at Waldo, Florida. A little later than Peen-to. A seedling of Peen-to. Originated by Robert Keith, of Waldo, Florida.

*Murat* (T. T. Lyon, South Haven, Mich.).—Roundish, bulged, of medium size; surface velvety, yellow, washed and mottled with red; down short, loose; cavity medium, regular, of medium depth and gradual slope; suture very shallow except at apex; apex a round point set in suture, about one-eighth of an inch below general surface. Skin of medium thickness, slightly bitter; stone above medium in size, oval, free; flesh yellow, slightly stained with red at stone; melting, juicy, vinous, sprightly; very good. Season late, ripening with Fox Seedling. Tree spreading; flowers small; glands reniform. Originated by C. Engle, Paw Paw, Mich.

*Orange Smock* (J. W. Kerr, Denton, Md.).—Roundish oval, of medium size, slightly unequal; light yellow, resembling Beers Smock, splashed with some red in the sun; down long, abundant, persistent; cavity medium, oval, of medium depth, quite abrupt; suture of medium and uniform depth; apex small, with black tip within suture. Skin thick, harsh; stone quite large, broad, thick, free; flesh light yellow, red at stone, melting; not very juicy, tart, brisk, pleasant, good. Season September 5-10 in Caroline County, Md. Tree stocky and productive. Regarded by Mr. Kerr as superior to any other peach of the Smock type.

*Pearl* (T. T. Lyon, South Haven, Mich.).—Size medium, resembling in form compressed specimens of Oldmixon; surface velvety, creamy white, slightly shaded with crimson stripes; cavity large, regular, of medium depth and gradual slope; suture very shallow; apex a brown dot in shallow suture, and about even with general surface. Skin thin, slightly bitter; stone of medium size, oval, plump, free; flesh white, tinged with red at the stone; melting, juicy; mild subacid; good. Season about with Oldmixon. Tree spreading, productive; flowers small; glands reniform. Originated with C. Engle, Paw Paw, Mich.

*Quality* (J. W. Kerr, Denton, Md.).—Roundish, above medium size; velvety; white, washed and splashed with crimson; down of medium length, easily removed; cavity large, regular, deep, abrupt, marked with pink; suture very shallow, from cavity to apex; apex slightly protruding beyond the general surface. Skin thin, tough, with slight amygdaline taste; stone above medium, oval, compressed, free; flesh creamy white, tinged with red at stone; melting, juicy, vinous, sprightly, very good. Season last of August in Caroline County, Md. Tree productive. Mr. Kerr regards this, when eaten fresh from the tree, as superior to any other variety he grows.

*Robena* (Plate iv.—Dr. Thomas Taylor, Washington, D. C.).—Roundish, large; velvety, yellow, with shaded red and crimson cheek; down short, loose; cavity medium, regular, deep, abrupt, red; stem short, stout; suture long, from cavity to one inch past apex, shallow, except at cavity and apex; apex a double point within the suture. Skin thin, tenacious; stone of medium size, long, oval, compressed, free; flesh deep golden yellow, tinged with red at the stone; melting, juicy, mild subacid, vinous; quality best. Season late, October 1 to 10 in District of Columbia. Tree spreading, productive; shoots slender; glands reniform. This promising late dessert peach originated in the city of Washington. The original tree was produced about 6 years ago from seed of a seedling peach grown on Capitol Hill, and has borne good crops since it was 3 years old.

*Rodgers* (W. C. Rodgers, Nashville, Ark.).—Oblong, pointed, below medium in size; surface slightly uneven, a little harsh from its short persistent down; dull yellowish white, striped and blushed with red; cavity medium, roundish, oval, of medium depth and abrupt slope; suture uniformly distinct and moderately sunken from stem





ROBERTA PEACH





PLUMS

a - GOLDEN PRUNE

b - COE GOLDEN DROP

c - YELLOW AUBERT

d - YELLOW AUBERT, section



to point of apex and continued as a depression on the opposite side of the fruit; apex pyramidal, protruding. Skin quite thick and harsh; stone of medium size, rather long, cling, very red; flesh dull yellowish white, with a little red at stone; firm, mild and sweet when well ripened; quality good. Season middle of November in Howard County, Ark.

*Russell* (J. M. Russell & Son, Wymore, Nebr.).—Round, above medium; velvety; whitish base, shaded and washed with crimson, becoming solid crimson on sunny side; down short, easily removed; cavity large, wide, oval, deep, abrupt, marked with green and pink; stem normal in length, stout; suture shallow except at apex; apex a small point near the end of suture. Skin thin, tender, bitter; stone medium to small, oval, plump, free; flesh greenish white with yellowish veins, red at stone, very melting, juicy; mild subacid, rich; very good. Season a month later than Alexander, in Gage County, Nebr. Grown from a seed of Hills Chili produced by side of Alexander; first crop 1893. In appearance this fruit resembles Hale, but the flesh is red at the stone and free.

*Stiles* (Dr. E. P. Stiles, Austin, Tex.).—A medium-sized fruit resembling Elberta, but claimed to be three weeks earlier; flesh reddish yellow, red at stone; melting, juicy, free; quality excellent. Perhaps more highly colored and sweeter than Elberta, but not so firm. Season June 25 to July 5 in Travis County, Tex. Originated from seed brought from Virginia and planted in 1866.

*Tennessee* (Rev. J. G. Teter, Athens, Tenn.).—Globular, above medium; surface almost harsh, with short persistent down; creamy white, with a suggestion of red on exposed side; cavity regular, medium, abrupt; suture from cavity to apex, shallow except at the ends; apex a double point even with or projecting beyond the general surface of the fruit. Skin thick, leathery, not bitter; stone above medium, oval, cling; flesh creamy white to the stone, firm, meaty, juicy, sweet, rich; very good. Season October 20–31 in McMinn County, Tenn. This peach is of the Heath Cling type, probably a few days later in season of ripening. At 3 years of age, in 1893, the tree bore 3 bushels of fruit.

*Toquin* (T. T. Lyon, South Haven, Mich.).—Roundish, of medium size; surface velvety, yellow, shaded with red near suture; cavity medium, regular, of medium depth and gradual slope, with yellow markings; suture shallow except at apex; apex a round point in a circular depression. Skin thin, stone of medium size, oval, plump, free; flesh yellow, melting, juicy; mild subacid; good. Season with Oldmixon. Tree upright, spreading; flowers large; glands reniform. Originated with H. E. Harrison, Toquin, Van Buren County, Mich.

*Woerner* (William T. Woerner, New Brunswick, N. J.).—Oblong, of medium size, velvety; creamy white, with a suggestion of red on cheek; cavity medium, regular, deep, abrupt; suture shallow, with delicate red line in center; apex a double point, slightly raised above general surface of fruit. Skin thin, strong; stone small, long oval, cling; flesh white to the stone, firm, sweet, rich; very good. Season October 20–31 in Middlesex County, N. J. Shoots stout, short-jointed, dark purplish red; leaf large with reniform glands.

*Wright* (November) (A. W. Eames, Los Angeles, Cal.).—Large, globular; surface velvety; rich orange yellow, shaded with red; down short; cavity large, regular, deep, abrupt; suture very deep and narrow at cavity, extending to the apex and marked by a red line; apex a wide double point protruding about three-sixteenths of an inch beyond the general surface. Skin thick; stone large, very plump, cling; flesh yellow, slightly tinged with red at the stone; firm, juicy, sweet, rich, very good. Season November 1–10 in Los Angeles County, Cal.; about a month later than Salway in same locality. Very productive.

*Unnamed Chinese* (Prof. C. S. Sargent, Jamaica Plain, Mass.).—Round to oblong conic, slightly unequal, compressed; size medium or below; surface smooth, almost free from down; color greenish white, sprinkled with irregular dots, which mingle into a faint blush on the sunny side; cavity medium, roundish, oval, of medium depth, with abrupt slope; suture rather deep, broad, and marked by a red line; apex a small protruding tip. Skin moderately thick, quite tough; flesh greenish white with green veins, and very slightly tinged with red at the stone, which is of medium size, rather long, slender, pointed, plump, free; flesh firm, juicy, somewhat fibrous; subacid to sweet, with hardly a trace of *noyau* flavor; quality good, better than many varieties now grown for market. Season September 5–15 at Arnold Arboretum. Tree a strong grower, vigorous, very productive and hardy. The blossom buds have not yet been killed by cold. Grown from seed received in 1868 at the Arnold Arboretum, from Dr. Bretschneider, who found it as a cultivated peach in the mountains north of Pekin, China. It is promising as a type for experimenters to use in the production of new, hardy varieties.

#### PLUMS.

*Golden Prune* (Plate v a.—Seth Lewelling, Milwaukee, Oreg.).—Oval, compressed, sometimes elongated, medium to large; surface even, somewhat roughened by rus-



set; color dull yellow with a light bloom; dots numerous, depressed; cavity round, small, shallow, abrupt; stem short, curved, and enlarged toward the base; suture shallow and rather broad from cavity to apex; apex depressed, often cracked in fully ripe specimens. Skin of medium thickness; flesh tender, amber yellow, melting, juicy; stone long, large, with a wing, free; quality very good, both for fresh use and for curing. Season early September, in Clackamas County, Oreg. Originated by Mr. Lewelling from seed of Italian Prune. A very promising variety for prune-producing regions. The illustration was made from medium-sized specimens grown at Napa, Cal.

*Coe Golden Drop* (Plate v b.—Leonard Coates, Napa, Cal.).—This well-known old variety is illustrated to furnish a standard of comparison for the newer varieties shown. It is one of the most widely grown late yellow plums and succeeds in almost all plum districts except the most northern ones, where it sometimes fails to mature its fruit. It is valued for its productiveness and excellent quality. It originated in England about the beginning of the present century. The illustration was made from a medium sized specimen grown at Napa, Cal.

*Pacific* (Sluman & Nunn, Mount Tabor, Oreg.).—Oblong, very large; smooth, glossy, dark brownish crimson; dots very numerous, golden; bloom profuse, light blue; cavity medium, regular, shallow, with gradual slope; stem short, rather stout; suture shallow, distinct; apex depressed and slightly leather-cracked. Skin thick, tough; flesh translucent, with white veins, melting, juicy; stone medium, oval, shouldered, nearly free; flavor sweet, rich, very good. Season latter half of September in Multnomah County, Oreg. Tree said to be a very upright grower and a heavy cropper since three years old. Originated at Mount Tabor. Promising for use in the fresh state as well as for curing into prunes.

*Yellow Aubert*, synonym *Dame Aubert jaune* (Plate v c and d.—T. T. Lyon, South Haven, Mich.).—Oval to oblong, regular, large; smooth, glossy, greenish yellow, becoming a rich golden yellow, with translucent markings; dots numerous, small, green; bloom profuse, white; cavity medium, regular, deep, abrupt; stem rather long, of medium thickness, curved, downy; suture marked but not deep; apex a russet dot within the suture. Skin thick, tender, quite acid; flesh yellow, clear, translucent, melting; stone large, long, oval, pointed, cling; flavor mild, rich, almost sweet; quality very good. Season September 10-15 at South Haven, Mich. Somewhat resembles Yellow Egg, but is earlier and of better quality. Shoots stout, red on the sunny side; leaf oval, pointed, large, thick, dark green. This variety and several others, including Voronesh Yellow and Moldavka, were imported from Russia by the Iowa Agricultural College several years ago. They have fruited in Iowa for several years, and are valuable additions to our list of hardy plums of the *domestica* type. Prof. J. L. Budd regards Moldavka as the best variety of this class.

#### CHERRY.

*Duraccia* (E. E. Goodrich, Santa Clara, Cal.).—A heart-shaped bigarreau, of above medium size; smooth, glossy, finely pitted; very dark purple, almost black; cavity large, regular, deep, smooth; stem medium, three-fourths to one and one-half inches long, very slender; suture deep and depression extended beyond the apex. Skin thin, tough; stone medium, plump, semicling; flesh red with lighter veinings; very firm and meaty; rich, sweet, delicate; very good to best. Season July 15 to 25 at Santa Clara. Promising as a shipping fruit. This variety was received from Italy and grafted at Santa Clara. It may be the "Pistojese" of Italy.

*Hoskins* (Plate vi—C. E. Hoskins, Newberg, Oreg.).—Roundish, heart-shaped, compressed; very large; smooth, glossy, dull purplish red, faintly mottled; dots indistinct, elongated; cavity round, of medium size and depth, with convex slope; suture not depressed; a mere line on the surface; apex slightly depressed. Skin thick, rather tough, leathery; stone plump, free, medium to large; flesh shaded with light and dark red; very firm, sprightly, sweet; good. Season early July in Oregon. Promising for market and long shipment. Tree reported as of vigorous, upright growth, very productive; young shoots brownish green with a gray over color and prominent yellow dots; leaves large, light green, ovate, coarsely dentate, with two large reniform glands. A seedling of Napoleon, originating with Mr. Hoskins 15 years ago.

#### GRAPE.

*Azure* (*Vitis aestivalis*) (J. S. Breece, Fayetteville, N. C.).—Cluster of medium size, cylindrical, with small shoulders, moderately compact and full; berry roundish, of medium size or smaller, adhering firmly; color black with heavy bloom; skin thick, slightly pulpy, with but little pigment; seeds three to four, quite large; flesh green, meaty, quite firm, moderately juicy; sweet with mild and very pleasant aroma; good for market or dessert. Season with Catawba.





HOSKINS CHERRY





CRITIC GRAPE





BOONE ORANGE



*Cozy (Vitis labrusca)* (J. S. Breece, Fayetteville, N. C.).—Cluster of medium size, simple, very compact; berry slightly elongated, of medium size, adhering very firmly; surface smooth, black, with light blue bloom; skin thin, leathery, free from pulp, but with deep red pigment; seeds few, large; flesh translucent, tender, firm, rather dry; mildly sweet with mild labrusca aroma; good for dessert and for market. Season apparently a week earlier than Ives. Its value for general planting is lessened by the fact that its blossoms are pistillate, but its earliness renders it worthy of testing.

*Critic* (Plate VII—J. S. Breece, Fayetteville, N. C.).—Cluster medium, slightly shouldered, compact; berries round, of medium size, commonly larger than Delaware but quite variable; color light, dull red with quite heavy bloom; skin of medium thickness, rather tender, not objectionable in flavor; pulp translucent, tender, with abundant rich juice; seeds few, of medium size, light brown; flavor mild, sweet, less sprightly than Delaware, slightly foxy; quality good. Season earlier than Brighton. Vine reported to be vigorous and less affected by mildew than most varieties. A seedling of Jefferson, promising for market and dessert, as a substitute for Delaware where that variety does not succeed. Mentioned in report of last year.

*Palmetto (Vitis bourquiniana)* (David Johnson, Union, S. C.).—Resembles Herbe-mont very closely in form and size of cluster, also in size of berry, but is claimed to be distinct. In color this is a dark garnet with heavy, light blue bloom; flesh soft, juicy, sweet, aromatic, vinous. Season middle of September in Union County, S. C.; two weeks later than Herbe-mont.

*Waddel (Vitis aestivalis)* (Dr. Edwin Waddel, Greenfield, Ohio).—Cluster of medium size, rather heavily shouldered, moderately compact, moderately full; berry oval, medium to large, adhering firmly; surface smooth, dark purple or black, with profuse blue bloom; glossy beneath the bloom; skin thick, tender, with considerable pulpiness and purple pigment; seeds few, large; flesh translucent, tender, melting, very juicy; mildly sweet, rich, pleasant, with abundant bouquet and slight musky aroma; good to very good for dessert, market and wine. Season September 20–30 in Highland County, Ohio. Vine productive and hardy; found in the woods of Highland County, Ohio, about 30 years ago, by John F. Waddel and transplanted to his farm.

Seedling formerly known as *McKinley's Jumbo (Vitis labrusca)* (J. S. McKinley, Orient, Ohio).—Cluster medium to large, shouldered, moderately full, not compact; berry very large, nearly an inch in diameter, roundish, slightly elongated, adhering firmly to the stem; surface almost black with a dull, heavy, brown bloom; skin rather thin and noticeably tender, with slight reddish purple pigment; seeds 3 to 5, large, grayish brown; flesh yellowish green, meaty, quite firm, moderately juicy, quite sweet, with foxy aroma. Season middle of October in Pickaway County, Ohio. A very large grape of fair quality. Vine a strong grower with large leaves.

#### RASPBERRY.

*Ferndale (Rubus occidentalis)* (W. B. K. Johnson, Allentown, Pa.).—Round oblate, large to very large, quite regular and smooth; crimson black with very heavy bloom; drupes large, flattened, showing suture; seeds of medium size and hardness; berry rather coarse but firm, moderately juicy; sweet, aromatic; very good; shipping quality good. Season slightly earlier than Gregg. Fruit borne in rather long spicate clusters; berries rather loosely attached to the receptacles. Canes reported to be very vigorous, with large, though not numerous, prickles. More productive than Gregg and a better berry, but perhaps less hardy. Promising for Central and Eastern States. From three-quarters of an acre of this variety Mr. Johnson harvested in 1892, 4,368 quarts. In 1893 the crop was about 1,000 quarts less, from the same area.

#### SEMITROPICAL FRUITS.

##### KAKI.

*Godbey* (T. K. Godbey, Waldo, Fla.).—Very large, some single specimens weighing more than a pound; conical, bright red, almost seedless; quality very good. Season early October in Alachua County, Fla. A seedling of Hyakume, originated by Mr. Godbey, who says of it: "Tree a rank grower, of spreading habit; very prolific."

##### ORANGE.

*Boone* (Plate VIII—C. A. Boone, Orlando, Fla.).—Roundish to roundish oblate, medium to large, with very smooth skin; oil cells small, depressed; color rather light orange. Peel medium to thin, tough; tissue thin, tough; seeds few, angular, of medium size; flesh rich orange yellow, sometimes tinged with red, tender; very juicy,



sprightly, sweet, with a trace of bitterness in the rag. Very early and of good quality; promising as a market variety. Tree a strong, vigorous grower with large leaves and winged petioles. Original tree grown from seed procured in oranges bought from a foreign vessel in Tampa, about 36 years ago. Mentioned in report of Pomologist for 1892.

## WILD FRUITS.

### PERSIMMON.

This native fruit, *Diospyros Virginiana*, is so widely distributed over the southern portions of the United States that its very abundance has no doubt fostered that contempt which familiarity breeds. But notwithstanding the low esteem in which it has been held, there are indications that it will soon become a staple fruit and worthy of the attention of the market-grower. A wide variation in the season of ripening, size, and quality of the fruit, and in the vigor and productiveness of the trees has been observed, which makes it a promising species for experimental work. Several enterprising fruit-growers have selected choice wild varieties for propagation and a few have already marketed fruit in considerable quantities. Among the best varieties thus far named and introduced are the Kemper from Tennessee, Early Golden from Illinois (mentioned in report of the Pomologist for 1891 under the incorrect name Alton), and the Marion and Golden Gem described below.

On Plate IX, *a* and *b*, illustrations of the two last-named varieties will be found, and also of a seedless wild persimmon (*c*) from Ohio and an oblong wild form (*d*) from Montgomery County, Md.

*Golden Gem* (Plate IX *b* — R. L. Martin, Borden, Ind.).—Roundish or slightly oblong, medium to large in size; color dark orange to red; seeds few; flesh soft, very sweet and rich; free from astringency even if picked before fully ripe. Commences to ripen about the last of August and continues till October. This variety was brought to notice by Mr. Logan Martin, of Borden, Ind., who found the original tree on his farm 35 years ago. He has propagated from this by budding, and now has more than 300 trees, including top-worked wild and young trees growing in the nursery.

He reports that the persimmon pays him better than any other fruit. The trees bear annual crops and the fruit finds ready market in Chicago and Indianapolis at \$1 to \$1.50 per 12 pint case, shipped by express. Some cases have sold as high as \$2. Mr. Martin estimates the yield of a well-grown tree at 15 to 25 gallons per annum and the average price at 75 cents per gallon.

*Marion* (Plate IX *a* — Samuel Miller, Bluffton, Mo.).—Roundish oblate, large, dull red, with rather tough skin and few seeds. Quality good, though less rich than some. Season October. Original tree found near Fulton, Mo., on land owned by Mr. J. H. Marion. Tree productive and a vigorous grower, with very large, thick leaves.

### PAPAW.

Not much has yet been done in improving this fruit by selecting desirable types for propagation and cultivation. Some interest has recently been manifested, however, and a few nurseries offer the trees for sale. It is valuable both as an ornamental tree and for its fruit. Specimens of choice varieties of this native fruit, *Asimina triloba*, have been received from several localities. Mr. D. Snow, of Chicopee, Mass., sent ripe specimens of medium size that were borne by a tree which he grew from seed about 35 years ago. They were of pleasant flavor and good quality, though less rich than fruit of the same species received from Ohio and Missouri.

Mr. Snow states that the tree has made a vigorous growth and seems hardy in his location. It commenced flowering when 10 or 12 years old, but did not bear fruit until several years later. Since then it has borne good crops. The fact that Chicopee is a considerable distance north of the range of natural distribution of this species gives this tree special interest to the fruit-grower.

Mr. Henry W. Hope, of Paint, Ohio, sent specimens of the papaw that were large and of very excellent quality and have the merit of ripening early. Mr. Hope reports a tree of this species in his neighborhood the trunk of which is 40 inches in circumference at 1 foot from the ground.

## NUTS.

### ALMOND.

*Jordan* (Charles Heath, ex-consul at Catania, Sicily).—Large, smooth, with thick, hard shell and a single, long, plump kernel of fine quality. Almonds of this variety are imported only as kernels and come to the United States principally from Malaga,





1. *Journal of the American Medical Association*, 1997; 278: 1019-1024.

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Spain, being mainly grown on the islands in the Mediterranean, off the coast of Spain. They are highly esteemed on account of their large size and pleasant flavor. They sell for 8 or 10 cents more per pound than other almonds in our markets. The commercial name "Jordan" is a corruption of the French "jardin," meaning "garden." An effort to grow this variety in this country is worthy of the attention of California almond-growers.

## CHESTNUTS.

*Dager* (J. W. Killen, Felton, Del.).—A seedling of the Ridgely; larger and perhaps better than the parent. The original tree is about 40 years old and stands on the farm of Mr. Dager, near Wyoming, Del. It is now being propagated by grafting.

*Felton* (J. W. Killen, Felton, Del.).—Is a large and very sweet nut, the best in quality of any Japanese chestnut thus far received. It possesses those edible qualities which are lacking in most other chestnuts of the Japanese type.

## EUROPEAN HAZEL.

*Jones* (J. W. Killen, Felton, Del.).—Short, roundish, of medium size; quality good. Shrub fruitful, hardy, disposed to sprout a good deal from the root. The foliage has thus far been free from mildew and other diseases in Kent County, Del.

## SHAGBARK.

*Eliot* (A. J. Coe, Meriden, Conn.).—Pyriform, with sides considerably corrugated; size medium; shell thin; cracking qualities good, though not best; kernel plump, not very oily; flavor mild and pleasant. This was the product of a grafted tree. It was awarded first prize on its merit as a nut, with few competitors, at the Connecticut Agricultural Society meeting at New Haven, December 19, 1892.

## PECAN.

Where not otherwise specified, the varieties were sent by Arthur Brown, of Bagdad, Fla.

*Alba*.—Size below medium, cylindrical, with pointed apex; cracking qualities good; shell of medium thickness; corky shell lining thick, adhering to the kernel; kernel plump, light colored; quality good.

*Biloxi* (W. R. Stuart, Ocean Springs, Miss.).—Medium size, cylindrical, pointed at each end; surface quite regular, light brown; shell thin; cracking qualities medium; kernel plump, with yellowish brown surface; free from astringency, of good quality, and keeps well without becoming rancid. Introduced several years ago by W. R. Stuart as Mexican Paper Shell, but the name has since been changed to Biloxi.

*Columbian* (W. R. Stuart, Ocean Springs, Miss.).—Large, cylindrical, somewhat compressed at the middle, rounding at the base; pointed and somewhat four-sided at the crown; shell rather heavy; cracking qualities medium; quality good. In size and form this nut closely resembles Mammoth, which was introduced in 1890 by Richard Frotscher, of New Orleans, La.

*Early Texan* (Louis Biediger, Idlewild, Tex.).—Size above medium, short, cylindrical, with rounded base and blunt conical crown; shell quite thick, shell lining thick, astringent; cracking qualities medium; kernel not very plump, of mild, nutty flavor; quality good.

*Georgia Melon*.—Size above medium, short, rather blunt at apex; cracking quality medium; shell rather thick; kernel plump, brown; meat yellow, moderately tender, pleasant, good.

*Gonzales* (T. V. Munson, Denison, Tex.).—Above medium size; with firm, clean shell; quality excellent. Originated in Gonzales County, Tex.

*Harcourt*.—Size medium, short, slightly acorn-shaped; cracking qualities medium; shell rather thick, but very smooth inside; kernel short, very plump; meat yellow; very tender; rich; very good.

*Longfellow*.—Size medium, oblong, cylindrical, somewhat irregular, enlarging from base to near crown, then sharply conical to the apex; cracking qualities not first-class; shell of medium thickness; kernel plump but rather thin, light-colored; meat white; sweetish, rich; good.

*Primate* (W. R. Stuart, Ocean Springs, Miss.).—Of medium size, slender, rather long; shell thin; quality good; ripens in September, thirty days before other nuts.

*Ribera*.—Size above medium; oblong ovate; cracking qualities good; shell thin; kernel plump, light brown, free from the bitter, red, corky growth which adheres to the shell; meat yellow; tender; with rich, delicate, pleasant flavor.



*Turkey Egg, Sr.*—Large, long, pointed; cracking qualities very good; shell of medium thickness; kernel long, plump; brownish yellow; separates readily from the shell; meat yellow, a little tough; not of highest quality.

*Turkey Egg, Jr.*—Smaller and shorter than the above; cracking qualities medium; shell of medium thickness; kernel plump, light colored; tender; oily; rich; good.

*Unnamed wild* (H. G. Hodge, York, Ill.).—Above medium size, with quite blunt ends, rather thick shell and good kernel; this is a promising variety for trial in the north, as it is the best one yet received from any point north of the Ohio river.

*Probable hybrid* (H. G. Hodge, York, Ill.).—Large and angular; many specimens obovate, resembling some forms of *Hicoria glabra*, the hull and shell much like *Hicoria ovata*, though the buds and leaves are more like *Hicoria sulcata*. Cracking qualities good. Kernel full, plump, and of superior quality. Worthy of propagation. Tree 80 feet high and 2 feet in diameter.

#### BLACK WALNUT.

*Gordon* (R. D. Buford, Buford City, Va.).—The largest black walnut thus far received at this office. Form cubical, slightly conical at each end; shell of medium thickness; cracking qualities good; kernel light colored, plump; quality excellent. Tree 3 feet in diameter and 60 feet in spread of branches. Planted by John Gordon, a Revolutionary soldier, who located in Bedford County, Va., prior to 1812. Many seedlings from this tree have been planted in other portions of the State, and some of them are reported to bear as good nuts as the original.

*Missouri* (J. H. Rose, Galt, Mo.).—Oval, compressed, of medium size, with quite smooth shell, which cracks well; kernel light colored, plump; flavor pleasant, delicate, quite free from the grossness characterizing the common black walnut; quality very good.







